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The Economic Impact of Right-To-Work Laws on Employment and Living Standards in the State of Arkansas

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by

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Introduction

In order for civilized nations such as the United States to enjoy peace and economic stability, it is essential that the current government have the authority to settle disputes that may arise between entities that do not enjoy an alignment of values. It is the responsibility of all levels of government to make rulings that promote civil rights and liberties with an emphasis on the well-being of the general public. Nowhere is this more evident than in the realm of competition and misalignment of goals that exists between organized labor and capitalistic employers. While organized labor's goals are often concerned with job security, pay increases, fringe benefits, safety standards, and/or representational rights, employers of all types are more likely to be concerned with controlling costs and maximizing a business's bottom line. While in a perfect world, labor unions and corporations would be willing to work together to achieve mutual benefits, it is no surprise that their goals often stand in stark contrast to one another.

Historical Context

Labor unions are not a creation of the American capitalistic society. Organized labor dates as far back as the late fourteenth century in the form of guilds in the Flemish cloth industry (Munro, 2000). The precursor to modern-day labor unions was a group of all male workers known as "fullers" and when the Count of Flanders tried to enact policies of wage reduction, they went on strike. This ultimately led to a labor agreement under which only half of the originally proposed wage cut was enacted. Collective bargaining was born. Despite their very primitive origins in the Flemish clothing industry, workers guilds would ultimately develop into the modern-day labor unions that possess great amounts of bargaining power and political influence. As democracy began to take hold in some of the World's largest countries, labor unions that sought to preserve the safety and financial stability of the individual worker became increasingly popular. Nowhere did workers banding together for mutual gain play a bigger part in the economy than in the young American colonies. In his book *Labor in America: A History*, Melvin Dubofsky says that the first "trade societies" in America were made up of both skilled and journeymen workers who performed jobs such as "carpenters and masons, shipwrights, and sail makers, as well as tanners, weavers, shoemakers, tailors, smiths, coopers, glaziers, and printers." These workers had three basic goals: higher wages (or at least the preservation of current wages), shorter hours, and improved working conditions (Dubofsky, 2004). These early trade societies sought to attain these goals largely through peaceful demonstrations, particularly strikes. As time went on, union power and membership underwent a cyclical increase in influence that tended to trend upward during times of prosperity and downward during more difficult economic times.

For the majority of U.S. history, the story has been the same. Unions strove to gain political influence so they might tip the scales of power in their favor, while capitalist entrepreneurs sought to use their monetary resources to limit the influence that unions could have. The fact that unions were slowly but surely gaining ground was evident. In 1913, President Taft signed a bill that made the Department of Labor a cabinet department (Columbia, 2011). This was evidence of the progress that organized labor was making in America. Due to the large number of labor disputes that were taking place in the industrial sector, on July 5, 1935, President Franklin Roosevelt signed the National Labor Relations Act into law (2011). As the "primary law governing relations between employers and employees in the private sector," the

NLRA established the National Labor Relations Board to handle disputes between the two parties (2011). The National Labor Relations Act, also known as the Wagner Act, guaranteed the "rights of labor to organize and bargain collectively through representatives of their own choice" (Columbia, 2011). Essentially, the Wagner Act protected employees from union busting activities by employers and established that workers did indeed have a basic right to collectively bargain. This was a major gain for workers because they had for so long been at the mercy of the legal system that tended to favor corporate interests over workers' rights. Critics of the Wagner Act claimed that it gave too much power to union leaders. There were a large number of bills that sought to modify the provisions of the Wagner Act that either died in Congress or were vetoed by the President. It wasn't until 1947, that a piece of legislation was successfully passed that significantly modified the statutes set forth in the Wagner Act. In 1947, Congress passed the Labor-Management Relations Act (Columbia, 2011). More widely known as the Taft-Hartley Act, the Labor-Management Relations Act included some provisions that swung the pendulum of power back toward corporate interests, and put a damper on some of the practices that unions were able to utilize. Due to the fact that national crises (particularly war) tended to force governmental and corporate organizations to concede to unions' demands when strikes were implemented during times of dire need for industrial output, the Taft-Hartley Act gave the federal government the right to "obtain an 80-day injunction against any strike that it deemed a peril to national health or safety" (2011). While this indeed may have been a necessary provision, it is easy to see why union members saw this as an infringement upon their basic rights. Another provision in the law that drew criticism from union supporters was the fact that the Taft-Hartley Act outlawed the "closed shop" (2011). The closed shop is a labor term for when an organization employs only members of the organization's representing labor union. This type of setup gave union leaders a lot of power over their members because belonging to a labor union was a condition of employment in these types of establishments. The Taft-Hartley Act also limited the "union shop" to only being permitted if a majority of employees voted in favor of it. The union shop refers to establishments in which employees can be hired regardless of whether they are union members or not, but they must join a union within a certain amount of time to keep their jobs (2011). One result of these two provisions in the Taft-Hartley Act has had a lasting effect on the economy of the United States for the past 65 years. As a result of the Taft-Hartley Act being passed, there was a push by business leaders and conservative leaning politicians to pass "Right-To-Work" laws on a state to state basis. These laws prohibit requiring an employee to join a union at anytime during their employment, essentially outlawing the union shop. In addition to outlawing the union shop, RTW laws also outlawed the "agency shop." The agency shop referred to some establishments that did not require union membership as a condition of employment, but did require employees to pay the standard union membership dues. According to the National Right-To-Work Legal Defense Foundation's website, twenty-three states have now passed some form of right-to-work legislation (2012). The proponents of these laws believe that individuals should have the right-to-work without being forced to become a member of an organization whose beliefs and values may not be aligned with those of the individual worker. Opponents of these amendments contend that RTW laws undermine the ability of workers to organize for collective bargaining and allow for individuals to become freeloaders, receiving benefits that unions have fought for without paying dues. People who are in favor of RTW laws contend that these laws are friendly to business, allow business owners to operate freely without giving an inordinate amount of power to union bosses, and ultimately promote higher levels of employment in those states. Opponents of these laws disagree with

these points, contending that workers in right to work states suffer lower standards of living, weaker union representation, and lower wages than workers in other states. The purpose of this research is to look at statistics and the actual effect of right-to-work laws when put into practice in order to determine if workers and businesses in Arkansas are indeed better off as a result of Arkansas becoming a right-to-work state.

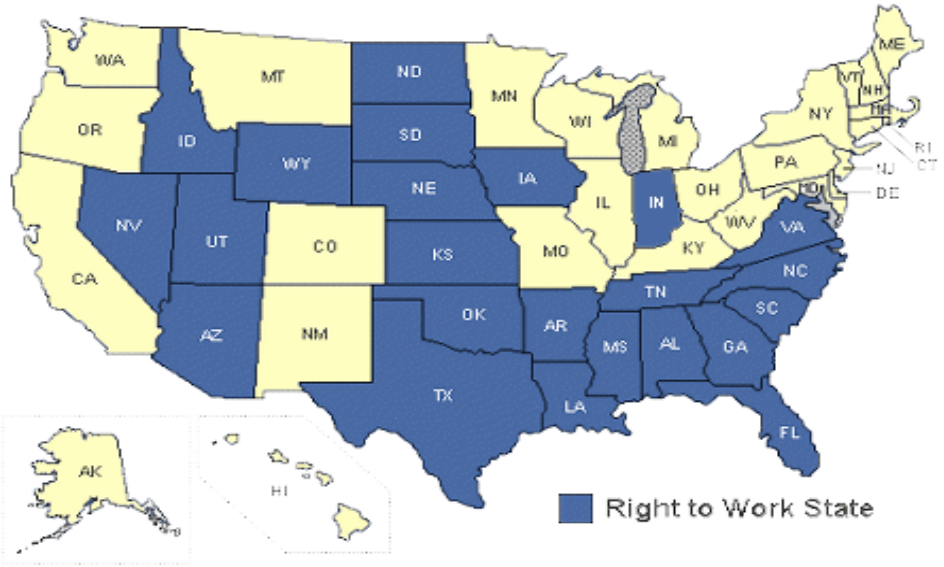
Background Information

With the passage of Taft-Hartley, states gained the ability to amend their constitutions to outlaw the union shop and the agency shop if they so chose. Chart 1 shows when the respective right-to-work states enacted their various laws. The most recent of these states to go RTW is Indiana, which enacted its constitutional amendment on February 1st, 2012 (Davey, 2012). Figure 1 is a map of the RTW states.

Chart 1: Right-To-Work States by Year of Adoption

State	Year of RTW Passage	State	Year of RTW Passage
Florida	1943	Alabama	1953
Nebraska	1947	South Carolina	1954
Arkansas	1947	Utah	1955
Georgia	1947	Kansas	1958
Iowa	1947	Mississippi	1960
North Carolina	1947	Wyoming	1963
South Dakota	1947	Louisiana	1976
Tennessee	1947	Idaho	1986
Virginia	1947	Texas	1993
Arizona	1947	Oklahoma	2001
North Dakota	1948	Indiana	2012
Nevada	1951		

Figure 1: Right-To-Work State Map



Review of Past Studies

While opponents and supporters may be set in their opinions as to whether or not RTW laws are a good thing, previous studies are conflicting at best. Richard Vedder (2010) attributes increases in population growth, as well as annual growth in average wage rates to right-to-work laws, citing union monopolies for keeping the marginal labor cost above marginal revenue for employers. He asserts that this imbalance is more easily dissolved in right-to-work states as a result of less union power. However, Lonnie Stevans, (2009) contends that while right-to-work states have a higher number of businesses and self-employment, capital formation, employment and personal income are either not-statistically different, or lower (in the case of personal income) in right-to-work states . His study determined that while proprietors' income is higher in right-to-work states, "there appears to be little "trickle-down" to the largely non-unionized workforce in these states". He also notes that bankruptcies are more common in right-to-work states than in non-right-to-work states. Lawrence Mishel of the Economic Policy Institute did a study in 2001 on right-to-work laws and wages that partially controlled for cost of living differences between states. He found that when controlling for a variety of factors, workers in right-to-work states earned a statistically significant 3.8% less than their non-right-to-work counterparts (Mishel, 2001). Emin Dinlersoz and Ruben Hernandez-Murillo (2002) did a study on manufacturing growth in Idaho before and after its passage of right-to-work laws and while they did determine that decreased unionization led to an increase in manufacturing growth, it was inconclusive whether or not they could attribute the decreases in union membership to right-to-work laws. One particularly interesting study was done by Robert Krol and Shirley Svorny (2007). Their paper *Unions and Employment Growth: Evidence from State Economic Recoveries* concluded that stronger unions due in part to a lack of right-to-work laws in some states negatively affected states' ability to increase employment after periods of economic recession (2007).

Descriptive Statistics

This paper will look at the impact that right-to-work laws have had on certain economic statistics that are viewed as major economic indicators. These economic indicators are a good indication of the current state of the economy. Time series data for these statistics will provide reviewers with a look at how right-to-work states have fared versus non-right-to-work states over the past decades. The economic indicators that will be taken into account are the unemployment rate, the labor force participation rate, population growth rates, and average wage rate growth.

The chief criticism that proponents of unions make of right-to-work legislation is that laws outlawing the closed shop reduce a union's ability to retain membership and add new membership. As a precursor to addressing whether or not right-to-work laws have a significant effect on the economic performance of states, one must first determine whether or not states with right-to-work laws actually do have lower rates of union membership. If this is not the case, then the arguments about whether or not right-to-work laws have a negative impact on union membership, thereby affecting a state's economy, are questionable at best.

When taking union participation rates from the Bureau of Economic Analysis and the Bureau of Labor Statistics and analyzing this data with SAS Enterprise Guide software, it quickly becomes clear that right-to-work states have much lower union membership than states without right-to-work laws. As you can see in Chart 2, during the period from 1989 to 2010 the

percentage of workers who were union members was always higher on average in states without right-to-work laws. The differences in these two means were statistically significant for every year observed. This is also true for the proportion of employee's who have union representation as seen in Chart 3. These employees may or may not be members of their place of employment's union, but they pay dues and receive union representation just the same as regular members. These means are also significantly higher in non-right-to-work states.

Chart 2: Union Membership
(Non-RTW, RTW, and Arkansas)

Year	Non-RTW (%)	RTW (%)	Equality of Variance	T-Calc	Significance	Sig Diff?	Arkansas (%)
1989	18.06	10.17	0.0258	6.3	<.0001	Yes*	9.7
1990	17.81	9.83	0.011	6.62	<.0001	Yes*	10.3
1991	17.88	9.79	0.0106	6.71	<.0001	Yes*	10.2
1992	17.4	9.71	0.0156	6.32	<.0001	Yes*	8.6
1993	17.18	9.51	0.0086	6.34	<.0001	Yes*	8.3
**1995	17.2	8.74	0.2143	6.91	<.0001	Yes*	7.8
1996	16.75	8.5	0.2168	6.96	<.0001	Yes*	7.1
1997	16.18	8.07	0.0741	6.64	<.0001	Yes*	5.9
1998	16.14	7.93	0.0266	7.79	<.0001	Yes*	6.2
1999	16.14	8.19	0.4298	7.15	<.0001	Yes*	7.5
2000	15.6	7.7	0.0742	7.2	<.0001	Yes*	5.8
2001	15.6	7.72	0.0638	7.78	<.0001	Yes*	6.5
2002	15.53	7.38	0.0042	7.34	<.0001	Yes*	5.9
2003	15.29	6.85	0.0052	8.64	<.0001	Yes*	4.8
2004	14.78	6.7	0.0021	8.28	<.0001	Yes*	4.8
2005	14.99	6.5	0.008	8.14	<.0001	Yes*	4.8
2006	14.57	6.61	0.014	7.91	<.0001	Yes*	5.1
2007	14.57	6.67	0.0162	7.73	<.0001	Yes*	5.4
2008	15.03	6.68	0.0482	7.94	<.0001	Yes*	5.9
2009	14.9	6.65	0.0209	7.75	<.0001	Yes*	4.2
2010	14.26	6.52	0.0383	7.65	<.0001	Yes*	4

*99% Confidence Level ** Data was not available for 1994

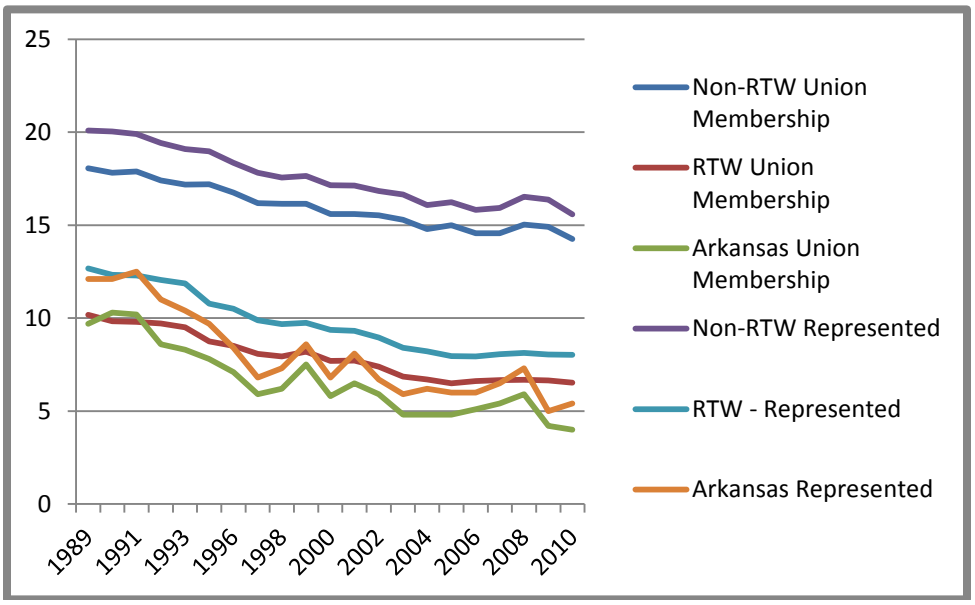
Chart 3: Union Representation
(Non-RTW, RTW, and Arkansas)

Year	Non-RTW Rep (%)	RTW - Rep (%)	Equality of Variance	T-Calc	Significance	Sig Diff	Arkansas Rep (%)
1989	20.09	12.67	0.1203	5.22	<.0001	Yes*	12.1
1990	20.03	12.33	0.071	5.39	<.0001	Yes*	12.1
1991	19.9	12.3	0.0661	5.42	<.0001	Yes*	12.5
1992	19.41	12.05	0.0681	5.28	<.0001	Yes*	11
1993	19.09	11.87	0.0311	5.71	<.0001	Yes*	10.4
**1995	18.97	10.77	0.5432	6.62	<.0001	Yes*	9.7
1996	18.35	10.51	0.6287	6.37	<.0001	Yes*	8.4
1997	17.81	9.89	0.4535	6.17	<.0001	Yes*	6.8
1998	17.55	9.68	0.0946	6.78	<.0001	Yes*	7.3
1999	17.64	9.75	0.508	6.83	<.0001	Yes*	8.6
2000	17.15	9.37	0.1921	7.04	<.0001	Yes*	6.8
2001	17.13	9.32	0.1043	7.42	<.0001	Yes*	8.1
2002	16.84	8.95	0.0165	7.49	<.0001	Yes*	6.7
2003	16.65	8.41	0.031	8.24	<.0001	Yes*	5.9
2004	16.08	8.22	0.0117	7.94	<.0001	Yes*	6.2
2005	16.23	7.96	0.027	7.88	<.0001	Yes*	6
2006	15.82	7.94	0.0849	7.22	<.0001	Yes*	6
2007	15.93	8.05	0.1046	7.35	<.0001	Yes*	6.5
2008	16.53	8.12	0.1411	7.87	<.0001	Yes*	7.3
2009	16.37	8.04	0.0765	7.48	<.0001	Yes*	5
2010	15.58	8.02	0.0876	6.88	<.0001	Yes*	5.4

* 99% Confidence Level ** Data was not available for 1994

It is worth noting that the two states that adopted right-to-work laws during the time period from 1989 to 2010 (Texas in 1993 and Oklahoma in 2001) did not experience drastically lower rates of union membership in the following years. Both states have experienced falling union membership rates as the years have gone on, but this trend of decreasing union membership is not unique to these states. As you can see in Graph 1 below, falling unionization rates is a trend that is shared by right-to-work states and non-right-to-work states alike. This has been going on since union membership peaked in 1954 at 35% of the nonagricultural employment (Dubofsky, 2010). It is hard to infer from the data whether or not right-to-work legislation lowers union participation or if states that have low union participation have values or prevailing ideologies that make them more likely to pass right-to-work laws. There is a bit of the chicken and the egg effect that is going on here that makes establishing causality difficult, but we can unequivocally say that right-to-work states have lower unionization rates than their counterparts.

Graph 1 Union Membership and Representation Rates (Non-RTW, RTW, and Arkansas)



Easily one of the most scrutinized and talked about economic statistics is the unemployment rate. The unemployment rate, in short, measures the percentage of the labor force participants that are unable to find jobs. More specifically, the unemployment rate is the percentage of unemployed workers divided by the total number of workers in the labor force. According to the Bureau of Labor Statistics, the labor force consists of workers who are non-institutionalized, over the age of sixteen, and are currently employed or if unemployed, have actively looked for work in the past four weeks. Not surprisingly, this statistic spends a large amount of time in the spotlight as politicians, policy makers such as the federal reserve board of governors, organized labor leaders, and employers offer their advice as to how to minimize the unemployment rate and shield workers from the negative effects of the business cycle.

Individuals who are in favor of right-to-work laws will contend that the increased influence that unions are privy to in non-right to work states result in wage floors (in the form of legislated minimum wages, union contracts, etc.) that create a mismatch between the supply of and the demand for labor. They would contend that unemployment in non right to work states could be partially attributed to those states' labor laws. Richard Vedder of the Cato Institute for Economic Analysis, contends that his statistical analyses have been able to attribute lower unemployment rates to right-to-work legislation. He points out in his article *Right-To-Work Laws: Liberty, Prosperity, and Quality of Life* that in 2007, right to work states had an average unemployment rate of 4.04%, while non-right-to-work states averaged 4.58% unemployment. These arithmetic means are good descriptive statistics for an overview of current conditions in right-to-work states and non-right-to-work states, however more work needs to be done to this data to determine if these differences are indeed statistically significant and if so, whether or not they can be attributed to differences in labor laws.

When using SAS Enterprise Guide, a data mining program, to analyze the difference in means between unemployment data obtained from the Bureau of Labor Statistics, it can be determined that Right-To-Work States do typically enjoy lower unemployment rates than their

non-right-to-work counterparts. However, using the ANOVA t-test for mean function of SAS produces results that are inconclusive to say the least. As evidenced by Table 3, right-to-work states had lower unemployment rates than their non-RTW counterparts from 1976 to 1985 and from 1990 to 2011. Right-to-work states had higher unemployment rates from 1986 to 1989. However, the differences in average unemployment rates were not statistically different for every year from 1976 to 2011. Right-to-work states had statistically lower unemployment during the time periods of 1976 to 1980 and from 1991 to 1996 evaluated at the 95% confidence level. If confidence standards are relaxed, we can be 90% sure that right-to-work states had lower unemployment during the years 1981, 1997, 2003, 2006, and 2008. The inconclusive part of this statistical analysis is that from 1982 to 1990, 1998 to 2002, 2004 to 2005, 2007 and 2009 to 2011 the unemployment rates of right-to-work states and non-right-to-work states had no statistical difference in their means.

The focal point of this paper is the effect of right-to-work laws on the economy of the state of Arkansas. The statistical results mentioned in the previous paragraph indicate at least on the surface that right-to-work laws indeed have a positive effect on individual states' efforts to minimize unemployment. However, for Arkansas the results are not as positive. During the time period of 1976 to 2008 Arkansas averaged a higher unemployment rate than both right-to-work states and non-right-to-work states in general with the exception of 1993 when Arkansas's unemployment was lower than the mean unemployment rate in states without right-to-work laws. These results are easily seen if you will take a look at Graph 2 below and Chart 4 on the next page. On the positive side, it is worth noting that Arkansas's unemployment rate actually fell below national unemployment rates for both non-right-to-work states and right-to-work states during the economic downturn during 2009 and 2010. This information is consistent with the findings of Robert Krol and Shirley Svorny whose economic analysis of unions and their effects on economic growth concluded that "union influence is linked to slower job growth during economic recoveries" (2007). Arkansas continued to have a relatively low unemployment rate in 2011 despite the poor national economy, with an 8% unemployment rate versus 8.32% unemployment in non-right-to-work states and 7.97% unemployment across all right-to-work states. This appears to bode well for Arkansas's economic outlook in the foreseeable future.

Graph 2: Unemployment Rate by State

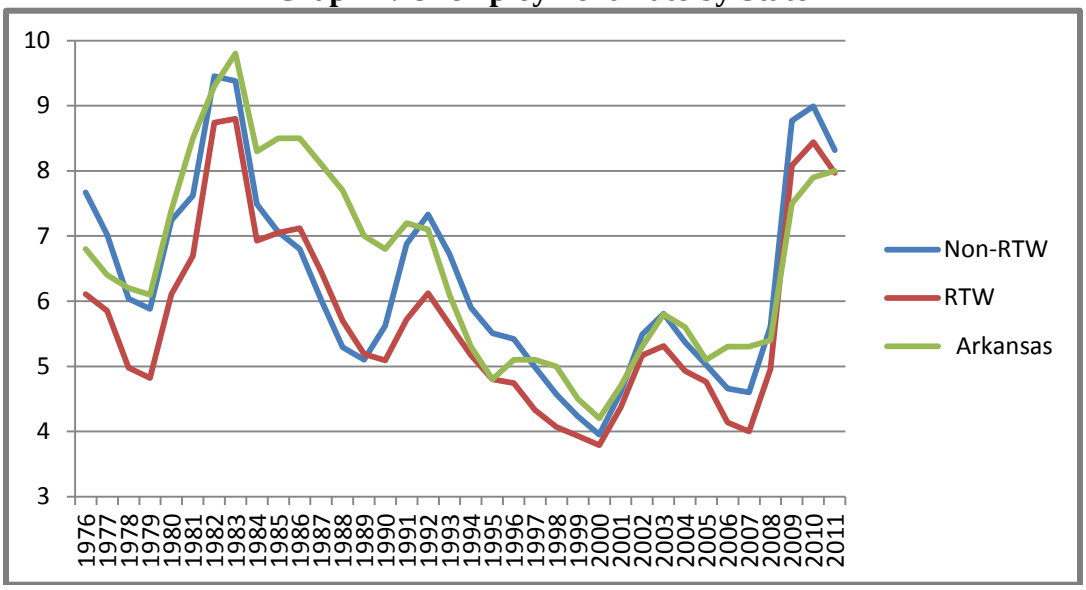


Chart 4: Unemployment Rates
(Non-RTW, RTW, Arkansas)

Year	Non-RTW (%)	RTW (%)	Equality of Variance	T-Calc	Significance	Sig Diff?	Arkansas (%)
1976	7.67	6.11	0.2534	3.04	0.0038	Yes	6.8
1977	7.02	5.85	0.3932	2.73	0.0087	Yes	6.4
1978	6.04	4.98	0.9232	2.73	0.0089	Yes	6.2
1979	5.88	4.82	0.9713	2.95	0.0049	Yes	6.1
1980	7.24	6.11	0.2579	2.62	0.0118	Yes	7.4
1981	7.62	6.69	0.8532	1.8	0.0785	No*	8.5
1982	9.45	8.74	1	1.08	0.2857	No	9.3
1983	9.38	8.8	0.7177	0.82	0.4172	No	9.8
1984	7.49	6.93	0.6123	0.9	0.3742	No	8.3
1985	7.06	7.05	0.6441	0.03	0.9796	No	8.5
1986	6.8	7.12	0.9307	-0.49	0.6254	No	8.5
1987	6.02	6.45	0.7588	-0.72	0.4775	No	8.1
1988	5.29	5.7	0.6936	-0.77	0.4443	No	7.7
1989	5.1	5.19	0.9749	-0.23	0.8228	No	7
1990	5.62	5.09	0.743	1.63	0.11	No	6.8
1991	6.88	5.72	0.8493	2.86	0.0062	Yes	7.2
1992	7.33	6.12	0.9653	2.82	0.0069	Yes	7.1
1993	6.72	5.64	0.8264	2.74	0.0086	Yes	6.1
1994	5.9	5.17	0.9672	2.07	0.0433	Yes	5.3
1995	5.51	4.8	0.5563	2.1	0.0405	Yes	4.8
1996	5.42	4.74	0.3859	2.06	0.0446	Yes	5.1
1997	4.99	4.33	0.2563	1.99	0.0524	No*	5.1
1998	4.57	4.07	0.1184	1.57	0.1238	No	5
1999	4.23	3.93	0.0946	1.04	0.3033	No	4.5
2000	3.95	3.79	0.2926	0.63	0.5318	No	4.2
2001	4.6	4.37	0.8114	0.91	0.3656	No	4.7
2002	5.49	5.17	0.9549	1.11	0.2723	No	5.3
2003	5.81	5.31	0.5201	1.69	0.0972	No*	5.8
2004	5.37	4.93	0.3142	1.53	0.1332	No	5.6
2005	5.02	4.76	0.4453	0.87	0.3903	No	5.1
2006	4.66	4.14	0.4295	1.81	0.0762	No*	5.3
2007	4.6	4	0.7687	2.2	0.0323	Yes	5.3
2008	5.61	4.96	0.255	1.86	0.0683	No*	5.4
2009	8.77	8.08	0.1844	1.25	0.2174	No	7.5
2010	8.99	8.44	0.0514	0.97	0.3384	No	7.9
2011	8.32	7.97	0.0219	0.58	0.5647	No	8

* Not Statistically Significant at 95% Confidence Level, but Statistically Significant at 90% Confidence Level

While the unemployment rate is a useful statistic for getting a general idea of the state of an area's economy, it is important to keep in mind that it is not the "be-all end-all" statistic that many in the public tend to make of it. The unemployment rate is most informative when taken in conjunction with the labor force participation rate. The labor force participation rate is a measurement of the total number of individuals who are in the labor force (both employed and unemployed) divided by the total number of the given area's citizens who are over sixteen and non-institutionalized. The reason the labor force participation rate is so important is because the unemployment rate is at its core, a flawed statistic. The unemployment rate is flawed because it fails to take into account individuals who have been unsuccessful in finding work and have given up searching for a job. These "discouraged workers" are not technically "unemployed", but they are certainly casualties of a less than optimal economy. In order to reinforce or weaken the above conclusions that right-to-work states have statistically equal unemployment rates as non-right-to-work states, and may in fact have lower unemployment rates, labor force participation must be considered. Based on data from the Bureau of Labor Statistics, SAS statistical analysis reveals that during the time periods 1976 to 2011, right to work states and their counterparts had statistically equal labor force participation. From 1976 to 1993, non-right-to-work states had higher labor force participation, but as previously stated, the differences in averages was not statistically significant. However, since 1994 right-to-work states have had higher labor force participation. It is worth noting that in 1993, Texas passed right-to-work legislation. This may account for the turning point where right-to-work states began to have higher average labor force participation. This can be observed in Graph 4 below. Much like it did with respect to the unemployment rate, Arkansas does not fare as well as much of the nation. During the past 35 years, Arkansas has consistently had lower labor force participation than both the right-to-work states and states without right-to-work laws. As you can see in Graph 3 and Chart 5, Arkansas's labor force participation has been approximately 4-5% below the national average during this time period, following the national trend with startling parallelism, but at a significantly lower rate.

Graph 3: Labor Force Participation Rate

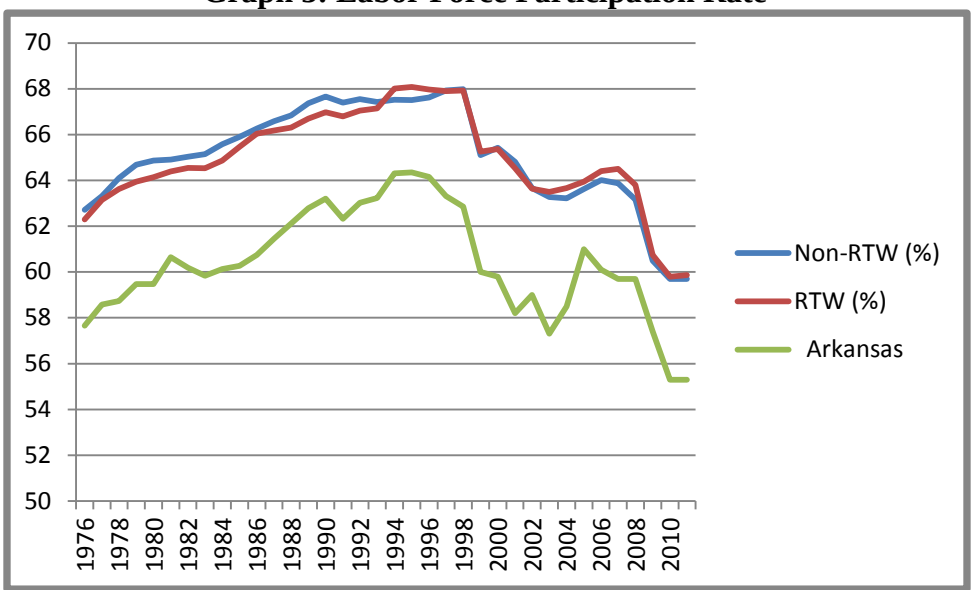


Chart 5: Labor Force Participation Rate
(Non-RTW, RTW, Arkansas)

Year	Non-RTW (%)	RTW (%)	Equality of Variance	T-Calc	Significance	Sig Diff?	Arkansas (%)
1976	62.72	62.29	0.3213	0.4	0.689	No	57.7
1977	63.31	63.15	0.383	0.14	0.8858	No	58.6
1978	64.1	63.62	0.4672	0.46	0.6502	No	58.7
1979	64.69	63.94	0.3402	0.7	0.4846	No	59.5
1980	64.86	64.14	0.3272	0.67	0.507	No	59.5
1981	64.91	64.39	0.5487	0.46	0.6454	No	60.6
1982	65.03	64.55	0.7647	0.42	0.6763	No	60.2
1983	65.14	64.53	0.8484	0.55	0.5854	No	59.8
1984	65.58	64.87	0.7884	0.62	0.5394	No	60.1
1985	65.9	65.47	0.7593	0.38	0.7073	No	60.3
1986	66.26	66.04	0.4217	0.2	0.8445	No	60.8
1987	66.58	66.18	0.424	0.35	0.7252	No	61.5
1988	66.83	66.31	0.4423	0.47	0.6427	No	62.1
1989	67.37	66.69	0.5086	0.6	0.5501	No	62.8
1990	67.66	66.97	0.6255	0.65	0.5161	No	63.2
1991	67.4	66.79	0.6618	0.57	0.572	No	62.3
1992	67.55	67.05	0.6414	0.47	0.644	No	63.0
1993	67.42	67.14	0.9272	0.25	0.807	No	63.2
1994	67.52	68.01	0.6465	-0.43	0.6706	No	64.3
1995	67.5	68.08	0.5717	-0.5	0.617	No	64.3
1996	67.62	67.97	0.5764	-0.31	0.76	No	64.2
1997	67.93	67.9	0.6735	0.03	0.9792	No	63.3
1998	67.98	67.92	0.8705	0.06	0.9548	No	62.9
1999	65.11	65.25	1	-0.12	0.9047	No	60
2000	65.42	65.37	0.6624	0.05	0.9593	No	59.8
2001	64.81	64.53	0.507	0.25	0.8041	No	58.2
2002	63.66	63.64	0.3837	0.01	0.9902	No	59
2003	63.27	63.49	0.513	-0.19	0.8528	No	57.3
2004	63.22	63.67	0.4024	-0.4	0.688	No	58.5
2005	63.62	63.95	0.3424	-0.31	0.7608	No	61
2006	64.02	64.41	0.2462	-0.35	0.728	No	60.1
2007	63.87	64.5	0.0715	-0.56	0.5787	No	59.7
2008	63.16	63.81	0.0268	-0.56	0.5787	No	59.7
2009	60.49	60.75	0.0341	-0.19	0.8492	No	57.4
2010	59.7	59.8	0.1238	-0.08	0.9364	No	55.3
2011	59.7	59.86	0.108	-0.12	0.9056	No	55.3

Population growth is another important statistic that must be factored into any analysis of an area's economic well-being. During the last 30 years, the population of the United States as a whole has increased from 226,545,805 to 308,745,538, an increase of 36.3%. During that same time period, Arkansas's population has grown from 2,286,435 to 2,915,918 or an increase of 27.5%. While Arkansas has not kept up with the nation's average population growth, it has fared better than many of its counterparts, some of whom have even had decades in which they experienced negative population growth. This is important for a state's economy because as a population ages, in order to maintain standards of living and steady economic growth, there must be a younger generation entering the work force to continue the trend of economic growth increasing output and tax revenue.

In his paper, *Right-To-Work Laws: Liberty, Prosperity, and Quality of Life,* Richard Vedder maintains that population growth in right-to-work states has outpaced growth in non-right-to-work states because right-to-work states "allow greater personal liberty with respect to employment" (2010). Whether this is the case or not remains to be seen. Census data coupled with statistical analysis using SAS reveals that right-to-work states have indeed outpaced their counterparts in terms of growth rate. However, the first decade of our analysis did not provide significant indications that right-to-work laws were having a positive effect on population growth. During the interval between 1980 and 1990, right-to-work states experienced an average growth of 10.6% compared to growth of 8.16% among states without right-to-work legislation. However, this difference was not statistically significant. During that same time period, Arkansas experienced growth of a mere 2.8%. The 1980-1990 decade did little to cast right-to-work laws and particularly, Arkansas's decision to pass them, in a positive light. However the following two decades were drastically different. As population growth increased across the nation, non-right-to-work states grew at a rate of 10.04%. While this was impressive compared to the previous decade, right-to-work states far surpassed their counterparts by growing at a rate of 18.34% through this ten year stretch. Furthermore, this difference was statistically significant at the 98% confidence level. Not only that, but Arkansas grew faster than the average non-right-to-work states, with a 13.7% growth rate. The 1990s were very kind to right-to-work states in general, and while Arkansas did not keep up with the average in that category, it grew at a higher rate than the non-right-to-work states did. The first decade of the 21st century proved to be more of the same. Non-right-to-work states grew at a rate of 7.03% but were once again outpaced by the states with right-to-work laws, which grew by 13.36% on average during the decade. This difference was also statistically significant at the 99% level. Arkansas experienced respectable growth of 9.1%, once again growing faster than the average state without right-to-work laws. The analysis results described above are summarized in Chart 6 below.

Chart 6: Population Growth Rates
(Non-RTW, RTW, Arkansas)

Time Period	Non-RTW	RTW	Equality of Variance	T-Calc	Significance	Sig Diff?	Arkansas
80-90	8.16	10.6	0.0358	-0.67	0.5069	No	2.8
90-00	10.04	18.34	0.0003	-2.4	0.0236	Yes*	13.7
00-10	7.03	13.36	0.0044	-3.18	0.0033	Yes*	9.1

* 95% Confidence

Methodology

Another question is whether or not this establishes right-to-work laws as a factor of causation that has a positive effect on population growth. When analyzing Census Department data with SAS, the results indicate that right-to-work laws have indeed had a positive effect on population growth during the past two decades. Simple regression however, can be improved upon. The most glaring trait that one notices when looking at the map of right-to-work states on page 5 is that most right-to-work states are in the South and West portions of the country, with a glaring lack of right-to-work states in the Northeastern United States. As Vedder notes in his analysis, "many of the right-to-work states are located in the Sun Belt, and, other things equal, many Americans prefer sunny warm climates to cold, damp ones" (2010). U.S. migration and population patterns show that there has been a trend of people moving further south and west in recent history. To account for this when doing SAS analysis, the growth rates of states were matched up with a dummy variable with a value of 1 indicating that a state is one of the 25 southern-most states and a value of 0 indicating a state from the northern half of the country. This coding was determined by grouping the states by how far south they were in terms of average latitudinal coordinates. It was expected that the variable for southern states and right-to-work laws would be highly correlated, but this was not the case, with a correlation coefficient of approximately of 0.4. It is also worth noting that in the regression models where population growth during the 1980s, 1990s, and 2000s respectively, are the dependent variables, states that adopted right-to-work laws during that time (Idaho, 1986: Texas, 1993: Oklahoma 2001) were omitted from the analysis during the decade in which they adopted these laws. This is in keeping with what Lonnie Stevans did in his study of right-to-work laws in 2009.

Results

Regression models using Census data reveal that right-to-work laws did not have a significant effect on population growth from 1980 to 1990. The model's R^2 in Chart 7 indicates it is a pretty good fit, explaining roughly 59% of the variation in population growth. The regression results indicate that instead of right-to-work laws, a better predictor of population growth would simply be the state's relative geographical location. Relative geographic location had a significant, positive effect on population growth in the 80s. On average, the twenty-five southern-most states experienced a population increase of 7.7% greater than that of the 25 northern most states over this 10 year period with a standard error of the coefficient estimate of 2.565. As one might expect, other large drivers of population growth were the increase in GDP, the average unemployment rate, and the average labor force participation rate from 1980 to 1990. All of these variables had a statistically significant effect on population growth and surprisingly, none of the independent variables in this study were highly correlated with one another. The independent variable with the largest impact on population growth after the variable denoting geographic sector was the average unemployment rate variable. Not only was this variable significant, but surprisingly the sign for the coefficient was a positive 2.8 with a standard error of .94. This indicates that for every 1% higher the average unemployment rate in a state was during that time period, the population growth was 2.8% higher average This is a surprising result indeed, but it may be explained by frictional unemployment. This is a type of unemployment that is caused by individuals leaving their jobs because they want to look for another one or they are moving to another area. It makes logical sense that states experiencing higher growth rates would

be experiencing higher rates of frictional unemployment. Other significant drivers of population growth include the average labor force participation rate with a regression coefficient of 1.77 and a corresponding standard error of 0.38446. This makes sense because individuals moving from state to state would be more likely to move to states with an abundance of jobs. The same is true for couples deciding to have children. The more people that an area can manage to keep employed, the more likely couples are to decide to have children, further contributing to the population growth. Unfortunately, while the variable denoting right-to-work states has a positive coefficient, it is not statistically significant at any substantial confidence level. Unfortunately for the state of Arkansas, while this model would predict Arkansas's population to have grown by 6.56% during this decade, Arkansas's population actually grew by only 2.8%. However, if one has the mindset that since population growth in Arkansas was less than one might expect and therefore the economic gains that the state experienced can be distributed among a smaller number of Arkansans, then these results do indeed seem positive. This regression analysis leads the researcher to conclude that right-to-work laws were not a significant driver of population growth in the 1980s and that Arkansas may have actually benefitted because of that.

Chart 7: Regression Analysis Population Growth 1980-1990
(Dependent Variable: Pop. Growth)

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	5	3903.242	780.6484	12.56	<.0001
Error	44	2735.13	62.16205		
Corrected Total	49	6638.372			
	Root MSE	7.88429	**R-Square**	0.588	
	Dependent Mean	9.166	**Adj R-Sq**	0.5412	
	Coeff Var	86.01671			
Parameter Estimates					
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-151.463	30.3601	-4.99	<.0001
RTW (1) 80-90	1	1.93556	2.56502	0.75	0.4545
South 25	1	7.73335	2.64899	2.92	0.0055
Increase in GDP 80-90	1	0.19205	0.03869	4.96	<.0001
AVG Unemployment 80-90	1	2.81733	0.94165	2.99	0.0045
AVG LFPR 80-90	1	1.77248	0.38446	4.61	<.0001

Alternatively, regression analysis reveals a different picture during the decade of the 1990s. Based on the results of the regression for population growth during the 90s, this research can conclude that right-to-work laws did have a significant effect on population growth during this time period. This model explained 75% of the variation in population growth among states during the 90s as indicated by the R^2 of the model. Right-to-work states, on average experienced a 4.9% greater increase in population that their counter parts did during this decade. Similarly, southern states grew on average by 5.7% more during the decade than northern states did when

other variables are taken into account. The standard errors for these two estimates are 2.077 and 2.155 respectively. States experienced a .31% greater population growth on average for each 1% increase in GDP over this time period. As in the model for the 1980s population growth, the average unemployment rate once again had a positive, significant impact on population growth, this time with a 4.89 coefficient and a standard error of 1.2. As in the previous model, this is probably attributable to frictional unemployment in high-growth states. The average labor force participation variable was also significant, with a parameter estimate of 1.35 and a standard error of .358. This indicates that for each 1% increase in the average labor force participation rate during the timer period, a state would be predicted to have a 1.35% higher population increase on average with all other variables held constant. All parameter estimates can be observed in Chart 8 below. This model would have predicted a population growth of 15.4% over the decade for Arkansas however Arkansas only experienced a population growth of 13.7%. The results of this model lead the researcher to conclude that right-to-work laws were indeed a significant factor in population growth during the 90s and while Arkansas grew less than expected, that may not be a bad thing when the increase in GDP was spread across the state's economy.

Chart 8: Regression Analysis Population Growth 1990-2000
(Dependent Variable: Pop. Growth)

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	5	4888.177	977.6355	26.41	<.0001
Error	44	1628.871	37.0198		
Corrected Total	49	6517.049			
	Root MSE	6.08439	**R-Square**	0.7501	
	Dependent Mean	13.268	**Adj R-Sq**	0.7217	
	Coeff Var	45.85763			
Parameter Estimates					
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-131.352	29.18703	-4.5	<.0001
RTW (1) 90-00	1	4.90205	2.07751	2.36	0.0228
South 25	1	5.7173	2.15564	2.65	0.0111
Increase in GDP 90-00	1	0.31509	0.0376	8.38	<.0001
AVG Unemployment 90-00	1	4.89073	1.20675	4.05	0.0002
AVG LFPR 90-00	1	1.35136	0.3581	3.77	0.0005

Based on the regression results from the first decade of the 21st century, it appears that right-to-work laws had no effect on population growth during this time period. This regression model explained approximately 50% of the variation in the dependent variable, population growth from 2000 to 2010. This model is represented in Chart 9 on the next page. Southern states experienced GDP growth of almost 8% more on average than their northern counterparts during this time period. For every 1% increase in GDP from 2000 to 2010, states experienced .15% greater population growth on average (SE = .06). Average unemployment also had a positive effect on population growth, again attributable to frictional unemployment. This parameter coefficient was estimated to be 2.5 with a standard error of 1.01. The average labor

force participation rate was significant, with a coefficient of .866 and standard error of .282. Using this model, and excluding all insignificant parameters, Arkansas would be projected to growth 17.8% in population from 2000 to 2010. Since Arkansas's population actually grew by 9.1% during that time, one must conclude that Arkansas's residents fared very well, receiving the economic benefits of a 50.5% increase in GDP and a 34% increase in average wages during the time period. However, the researcher cannot attribute these growths to Arkansas's right-to-work legislation.

Chart 9: Regression Analysis Population Growth 2000-2010
(Dependent Variable: Pop. Growth)

Analysis of Variance					
Source	**DF**	**Sum of Squares**	**Mean Square**	**F Value**	**Pr > F**
Model	6	1292.8	215.4667	7.08	<.0001
Error	43	1308.053	30.41985		
Corrected Total	49	2600.854			
	Root MSE	5.51542	**R-Square**	0.4971	
	Dependent Mean	9.782	**Adj R-Sq**	0.4269	
	Coeff Var	56.38335			
Parameter Estimates					
Variable	**DF**	**Parameter Estimate**	**Standard Error**	**t Value**	**Pr > |t|**
Intercept	1	-62.6145	22.7739	-2.75	0.0087
RTW (1) 00-10	1	2.33686	1.95905	1.19	0.2395
South 25	1	7.97488	1.96326	4.06	0.0002
Increase in GDP 00-11	1	0.15053	0.063	2.39	0.0213
AVG Unemployment 00-10	1	2.50131	1.00603	2.49	0.0169
AVG LFPR 00-10	1	0.86623	0.28216	3.07	0.0037
% Increase In HRLY Wage (2000s)	1	-0.27289	0.21225	-1.29	0.2054

While the increase in GDP did have a significant effect on the population growth, the increase in hourly wages was not a significant driver of population increases. This would seem to indicate that the increase in GDP that created jobs gave a boost to population growth, but those newly created jobs were more of an attractive factor for states than increases in wages. This could be explained by the fact that right-to-work states and non-right-to-work states experienced percentage increases in hourly wages that were statistically the same. Wages (across all industries) in right-to-work states increased by 33.28% from 2000 to 2010. Similarly, wages in non-right-to-work states grew by 33.26% during that time period. This was not a statistically significant difference. Arkansas outperformed both averages, with wages increasing by 34.8% during this decade. Since wages grew at roughly the same pace between right-to-work states and their counterparts, it makes sense that the majority of population gains in states were motivated by job creation. Job creation in turn, was driven by increases in GDP (output) in the right-to-work states. From 2000 to 2010, GDP grew by an average of 59.6% in right-to-work states versus a 47.72% increase in GDP in non-right-to-work states. This difference was significant at the 98% confidence level. Arkansas fared pretty well, with its GDP increasing by 50.5% during this time span. Arkansas experienced a greater increase in GDP than the average state without

right-to-work laws, but as was the pattern, it fell short of the average performance of the aggregate of right-to-work states. Based on this, right-to-work appears to have positively affected Arkansas's GDP growth in the first decade of the new millennium.

Conclusion

When looking at the results drawn from the data, there is insufficient evidence to declare unequivocally that right-to-work has been good for Arkansas. While right-to-work states have been shown to have unemployment rates, labor force participation rates, and average wage growth rates that are statistically the same as non-right-to-work states, Arkansas has consistently underperformed in these categories. On the other hand, right-to-work states have experienced statistically higher population growth and higher GDP growth during the past few decades than their right-to-work counterparts. Regression analysis indicates that right-to-work has been partially responsible for these discrepancies, and Arkansas has consistently outperformed the non-right-to-work state averages during recent years.

Based on a review of the data analysis employed during the course of this research, and a thorough analysis of the corresponding literature based on past studies, it is a conclusion of the researcher that right to work laws are more pro economic growth than their non-right-to-work counterparts, particularly in the short term. Unfortunately, the state of Arkansas's economy has not been privy to all of the improvements in economic stability with which many of the other right-to-work states have been blessed. However, this is not to say that Arkansas should repeal its right-to-work laws. All of the economic growth that Arkansas has experienced during the greater part of the last century has been done with right-to-work laws in effect. Currently, Arkansas enjoys lower unemployment, a higher population growth rate, and a higher GDP growth rate over the past ten years than non-right-to-work states do on average. The economy of Arkansas is not perfect by any stretch of the imagination, but it is performing adequately, and when considering the current condition of our nation's economy, that's certainly a positive.

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